Amendments to the claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (currently amended) A controlling method for data transmission comprising:

providing a system bus for connecting a first transmission channel and a second transmission channel with a command processor;

adjusting a transmitting direction of said system bus according to a transmitting direction of said second transmission channel; and

~~proceeding~~ performing data processing procedures of said second transmission channel according to said transmitting direction of said second transmission channel, wherein ~~parts~~ some of said data processing procedures of said first transmission channel will ~~last~~ occur during ~~a interval between said system bus~~ adjusting said transmitting direction of said system bus and the start of said data processing procedures of said second transmission channel ~~start on~~.

2. (currently amended) The method as recited in claim 1, wherein said parts of said data processing procedures of said first transmission channel ~~during said interval~~ comprise~~ing~~:

caching and decoding said data in said first transmission channel while the data is transmitted from said first transmission channel to said system bus.

3. (currently amended) The method as recited in claim 1, wherein said parts of said data processing procedures of said first transmission channel ~~during said interval~~ comprise~~ing~~:

encoding and storing said data to a storage media while the data is transmitted from said system bus to said first transmission channel.

4. (currently amended) A method for controlling a caching location and a processing timing of data in a data transmission channel module comprising:

determining a data transmission channel of said data transmission channel module according to a command issued by a command processor, and

performing parts of a processing procedure of a first transmission channel of said data transmission channel module ~~will last for~~ during a time ~~interval even though~~ period when a second transmission channel of said data transmission channel module ~~obtains an ownership of~~ is using a common transmitting path.

5. (currently amended) The method as recited in claim 4 comprising:

utilizing said first transmission channel for caching a first source data when a first command issued by said command processor is read; and

utilizing said second transmission channel for caching a second source data when a second command issued by said command processor is write, wherein said second command is performed after said first command.

6. (currently amended) The method as recited in claim 5, further comprising:

utilizing said first transmission channel for caching a third source data when a third command issued by said command processor is read, wherein said third command is performed after said second command, and ~~said caching location of~~ said third source data caching follows ~~said caching location of~~ said first source data caching on said first transmission channel.

7. (currently amended) The method as recited in claim 5, further comprising:

utilizing said second transmission channel for caching a third source data when a third command issued by said command processor is write, wherein said third command is performed after said second command, and ~~said caching location of~~ said third source data caching follows ~~said caching location of~~ said second source data caching on said second transmission channel.

8. (currently amended) The method as recited in claim 4 comprising:

utilizing said first transmission channel for caching a first source data when a first command issued by said command processor is read; and

utilizing said second transmission channel for caching a second source data when a second command issued by said command processor is read, wherein said second command performed after said first command.

9. (original) The method as recited in claim 4 comprising:

utilizing said first transmission channel for caching a first source data when a first command issued by said command processor is write; and

utilizing said second transmission channel for caching a second source data when a second command issued by said command processor is read, wherein said second command performed after said first command.

10. (currently amended) The method as recited in claim 9, further comprising:

utilizing said first transmission channel for caching a third source data when a third command issued by said command processor is write, wherein said third command performed after said second command, and ~~said caching location of~~ said third source data caching follows ~~said caching location of~~ said first source data caching on said first transmission channel.

11. (currently amended) The method as recited in claim 4 comprising:

utilizing said first transmission channel for caching a first source data when a first command issued by said command processor is write; and

utilizing said second transmission channel for caching a second source data when a second command issued by said command processor is write, wherein said second command is performed after said first command.

12. (currently amended) A ~~device apply to an optoelectronic system as a~~ data transmission channel module for an optoelectronic system comprising:

a first transmission channel bounded by a first pair of pipe indices for caching and transmitting data with ~~a~~ first processing procedures; ~~and~~

a second transmission channel bounded by a second pair of pipe indices for caching and transmitting data with ~~a~~ second processing procedures; and

a bus coupling said first transmission channel and said second transmission channel to a command processor for data transmission.

13. (original) The device as recited in claim 12, wherein said optoelectronic system is a DVD Player or a DVD Recorder.

14. (cancelled) The device as recited in claim 12 comprising:

a bus coupling said first transmission channel and said second transmission channel to a command processor for data transmission.

15. (currently amended) The device as recited in claim 12, wherein said first transmission channel and said second transmission channel are coupled~~ing~~ to a channel CODEC for data encoding and decoding.

16. (original) The device as recited in claim 12, wherein if said first processing procedures comprising a data decoding, said pair of pipe indices comprise~~ing~~:

a write pipe index for indicating amount of cached data in a corresponding transmission channel with said first processing procedures;

a decode pipe index for indicating amount of decoded data; and

a host-pipe sector data send index for indicating a mount of data sent from said corresponding transmission channel to a command processor.

17. (original) The device as recited in claim 12, wherein if said first processing procedures comprising a data encoding, said pair of pipe indices comprising: a host-pipe sector data get index for indicating amount of data sent from a command processor to corresponding transmission channel; an encode pipe index for indicating amount of encoded data; and a record pipe index for indicating amount of encoded data sent from corresponding transmission channel to a storage medium.